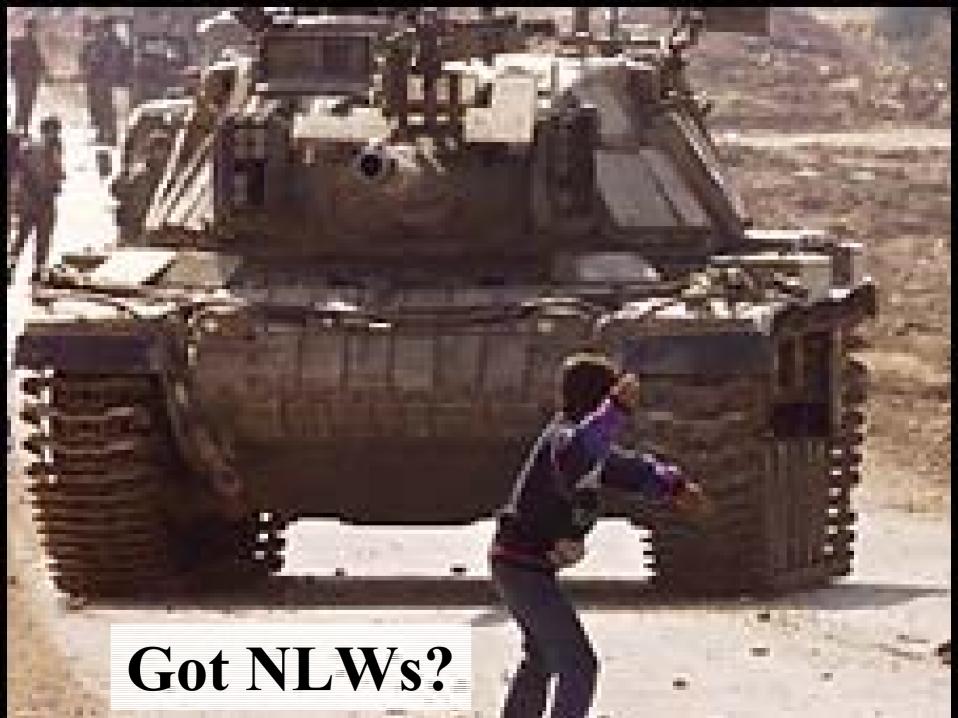
# The U.S. Department of Defense Joint Non-Lethal Weapons Program



Lieutenant General Buck Bedard, USMC
Deputy Commandant
for Plans, Policies, and Operations



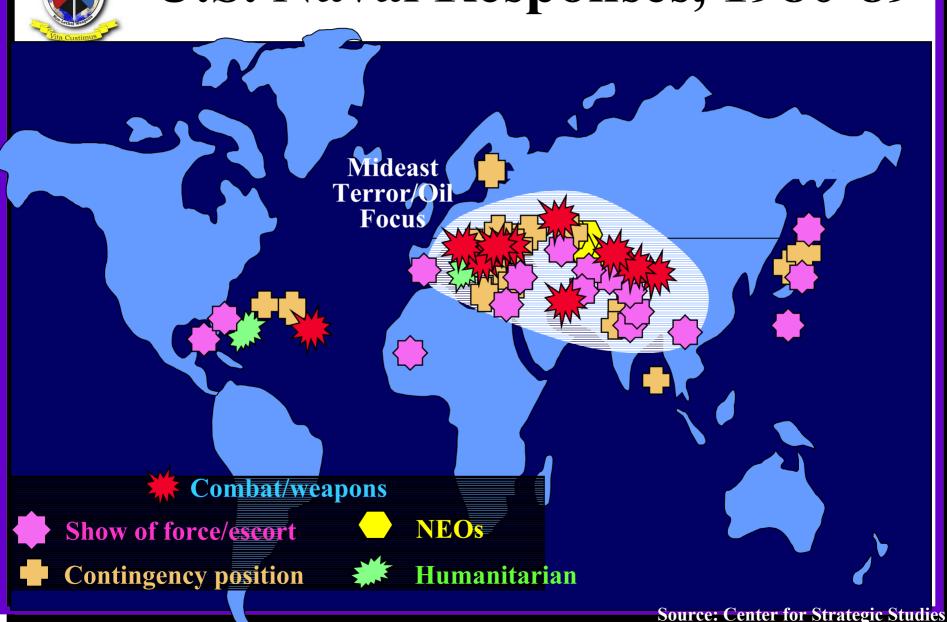
### Spectrum Of Conflict



## U.S. Naval Responses, 1970-79 Cold War Containment Focus Combat/weapons **NEOs** Show of force/escort Contingency position Humanitarian

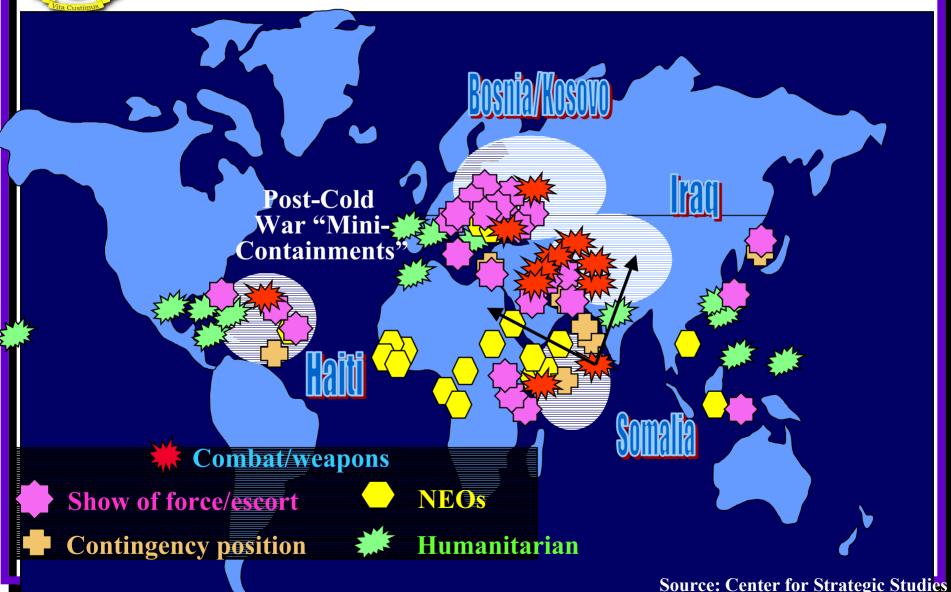
**Source: Center for Strategic Studies** 







### U.S. Naval Responses, 1990-99



#### FORCE CONTINUUM

MILITARY PRESENCE

CAPABILITY GAP

LETHAL FORCE

Force Continuum

Restrain the cycle of violence

Preclusionary Phase

*Pre-emptive* 

- Preventative
- Self-discriminating
- Controlled escalation

The friendly force having the ability to interrogate and discriminate then apply appropriate (proportionate) force while risks are acceptable (spatial and temporal).

Break the cycle of violence

Discriminate Phase

Initial Response

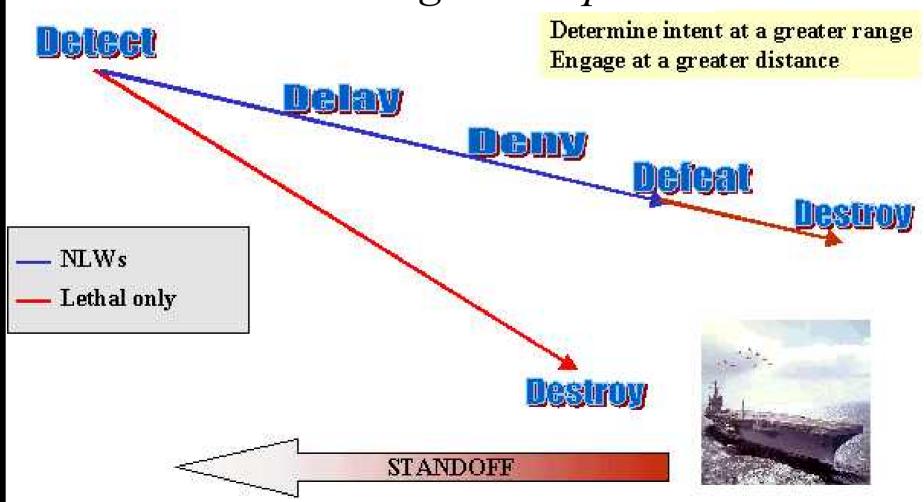
- Precision
  - accuracy
  - power
  - timing
  - effect
    - duration
    - degree
    - et al
  - response

Overwhelming force

Destroy Phase

# Increasing the Engagement Space and Engagement Time

Filling the Gap

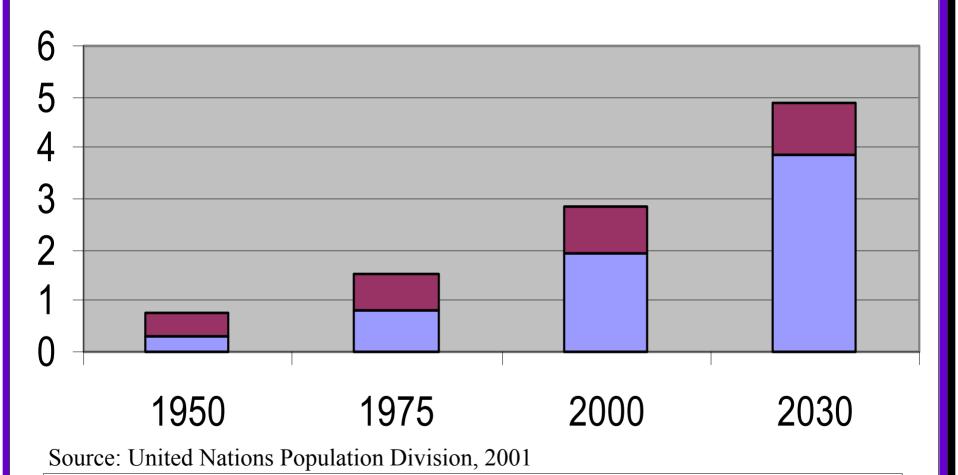








### World *Urban* Population (Billions)



■ Less Developed Regions
■ More Developed Regions





#### "Beyond the Rubber Bullet Modality"

"As the Department of Defense Executive Agent for the Joint Non-Lethal Weapons Program, I intend to meet this challenge by pursuing the development of a new generation of non-lethal weapons - an effort to leverage 21st Century technology to enable our warfighting CinCs to capitalize on a fullspectrum non-lethal capability."

General James L. Jones
Commandant of the Marine Corps
August 1999



### Non-Lethal Capabilities Technology Taxonomy



ELECTROMAGNETIC					
ELECTRICALS	RADIO FREQUENCY	MICROWAVE FREQUENCY	INFRARED	VISIBLE LIGHT	ULTRAVIOLET
Direct Current Pulsed Current	RF Devices Wide/Ultra Wide Band	High Power Microwave Millimeter Wave	Chem. Oxygen Iodine Lase Hydrogen/Deuterium Fluoride Lasers Solid State Lasers	Argon Lasers Isotropic Radiators Flashes, Flares & Strobes	Laser Ionizer

#### **MECHANICAL & KINETIC**

Blunt Impact Devices

Barriers

Entanglements

#### **ACOUSTIC**

Audible/Optical
Audible
Ultrasound

#### **ANCILLARY**

Markers Encapsulants Non-Lethal Casing

#### CHEMICAL

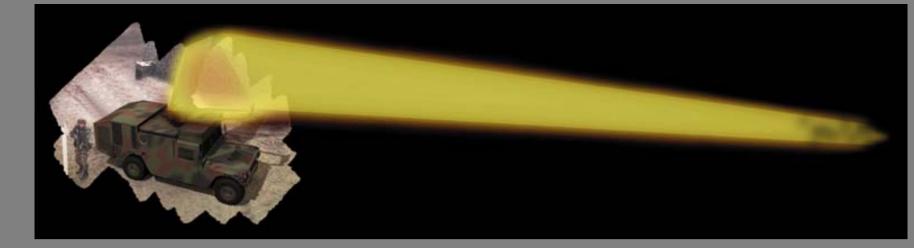
Riot Control Agents
Foams
Anti-Traction
Malodorants
Obscurants
Nanoparticles
Thermobarics
Reactants











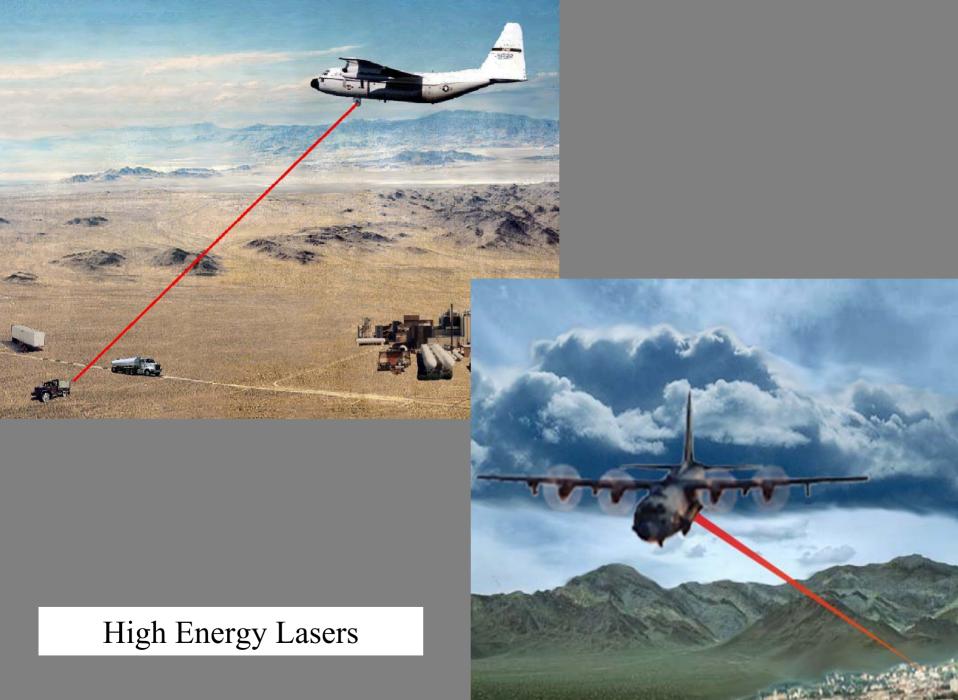


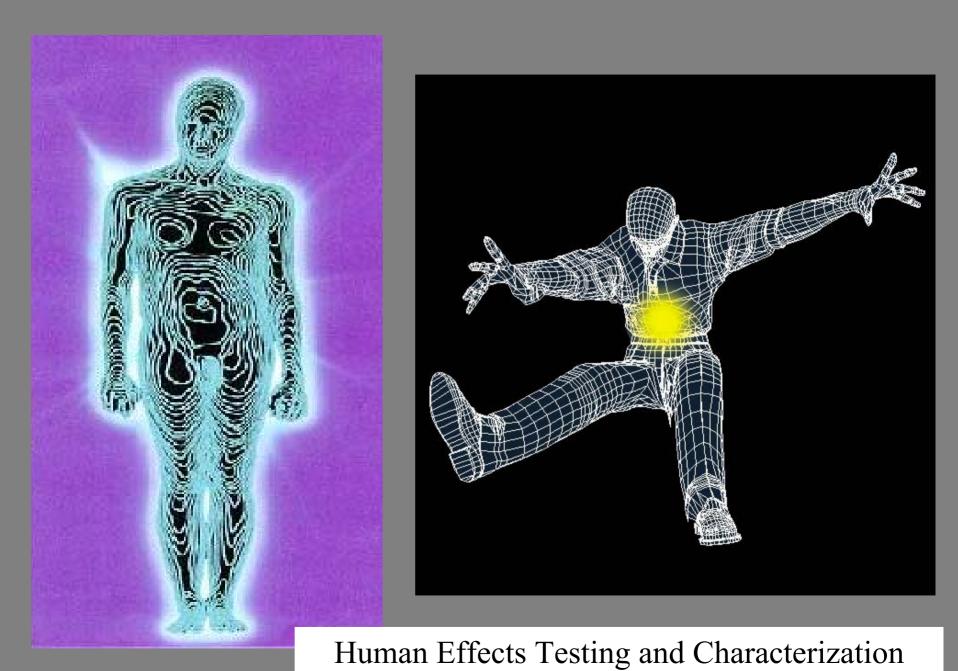
Active Denial System



E. P. Industries, Inc. / Mission Research Corp.

Pulsed Energy Projectile







# To The Future: Common Themes

- Non-lethal counter-personnel capabilities will attack a target's senses or cognitive / motor abilities
  - Reliable, repeatable, universal and reversible bio-effects are critical
  - Accurate, long range payload delivery along with a non-lethal delivery means



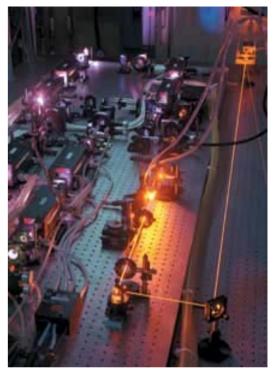




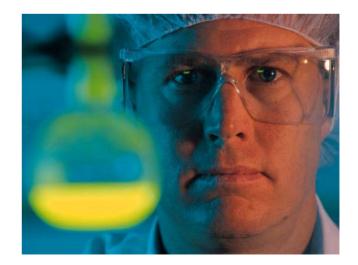


### How industry can help...











## Questions?

